



UNITED STATES PATENT AND TRADEMARK OFFICE

H.A

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,823	05/21/2004	Satoshi Tamura	60188-861	8403

20277 7590 11/02/2006

MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

REAMES, MATTHEW L

ART UNIT PAPER NUMBER

2891

DATE MAILED: 11/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/849,823

Applicant(s)

TAMURA ET AL.

Examiner

Matthew L. Reames

Art Unit

2891

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claim 1-4 are rejected under 35 U.S.C. 102(e) as being anticipated by Yoo.
 - a. As to claim 1, Yoo teaches a method for fabricating semiconductor devices, the method comprising the steps of: forming a semiconductor layer containing a positive layer on a mother substrate (see fig. 7 items 210 and items 150); forming a metal layer on the semiconductor layer (items 120,122,124,126); separating the mother substrate from the semiconductor layer after forming the metal layers thereby exposing a surface of the semiconductor layer (see fig. 10); and removing a desired region of the metal layer from ((an)) the direction of the exposed surface of the semiconductor layer to form a plurality of mutually separated semiconductor devices each containing the semiconductor layer (see fig. 11).
 - b. As to claim 2, Yoo teaches Cu and Au (see items 120,122,124,126).
 - c. As to claim 3, Yoo teaches the metal layer is formed by plating (see abstract).
 - d. As to claim 4, Yoo teach 100 microns (see paragraph 80).

- e. As to claim 7, Yoo teaches polishing before removal of sapphire substrate (see paragraph 78). The polishing will inherently remove some of the layer (see paragraph 78).
 - f. As to claim 13, Yoo teaches a group III nitride (see eg. abstract and figs)
2. Claim 1,5,6 are rejected under 35 U.S.C. 102(b) as being anticipated by Coman (2001/0042866).
- a. As to claim 1,5,6, Coman teaches teaches a method for fabricating semiconductor devices, the method comprising the steps of: forming a semiconductor layer containing a positive layer on a mother substrate (see figs 4A-4D items 30 and items 20a); forming a metal layer on the semiconductor layer (items 18); separating the mother substrate from the semiconductor layer after forming the metal layers thereby exposing a surface of the semiconductor layer (see fig. 4C); and removing a desired region of the metal layer from ((an)) the direction of the exposed surface of the semiconductor layer to form a plurality of mutually separated semiconductor devices each containing the semiconductor layer (see fig. 4D). Wherein the mother substrate maybe removed via polishing ofr a laser lift off process (see paragraph 21).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoo in view of Wong/Cheung.

a. As to claims 8 and 9, Yoo teaches the method as disclosed. Yoo further teaches a support substrate to hold the individual singulated LEDs. Yoo is silent to the support substrate.

Wong/Cheung teaches the use of an elastomeric film in conjunction with a metal layer. (column 6 lines 38-41)

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have bonded the device of Yoo to the film of Wong.

One would have been so motivated to allow easier transportation of the devices of Yoo.

b. As to claim 10 and 11, Yoo does not teach the use of a cleavable substrate.

Wong teaches the use of a Silicon layer (cleavable) underneath the metal layer (fig. 3 item 110, 108).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use a Silicon layer as the support film of Yoo.

One would have been so motivated to allow better heat conduction for the LEDs.

c. As to claim 12, it would have been further obvious to cleave the Silicon substrate of Yoo/Wong.

One would have been motivated in order to use the silicon layer a submount for each individual LED.

d. As to claim 14, Yoo does not explicitly teach forming a passivation layer over the semiconductor device.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to have formed a Mask/passivation layer over the device not to be etched (see fig. 11).

One would have been so motivated in order to protect the remain device from the etching process.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

Art Unit: 2891

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew L. Reames whose telephone number is (571)272-2408. The examiner can normally be reached on M-Th 6:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, B. William Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MLR



B. WILLIAM BAUMEISTER
SUPERVISORY PATENT EXAMINER